

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Anton J. Kryka et al.

Serial No.: 10/714,121

Filed: November 14, 2003

For: INDEX FILE FOR USE WITH IMAGE DATA
IN A DOCUMENT PROCESSING SYSTEM

Attorney Docket No.: PM060B (UNCO 0146 PUS)

Group Art Unit: 2166

Examiner: Joon H. Hwang

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief in support of the appeal from the final rejection of claims 2-49 of the Office Action mailed on March 8, 2007 for the above-identified patent application.

I. REAL PARTY IN INTEREST

The real party in interest is Unisys Corporation (“Assignee”), a corporation organized and existing under the laws of the state of Delaware, and having a place of business at Township Line and Union Meeting Roads, Blue Bell, Pennsylvania 19424.

II. RELATED APPEALS AND INTERFERENCES

This application is related to application Serial No. 10/714,122, filed on November 14, 2003, which is presently on appeal to the Board of Patent Appeals and Interferences.

There are no additional appeals, interferences, or judicial proceedings known to the Appellants, the Appellants' legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 2-49 are pending in this application. Claim 1 has been cancelled. Claims 2-49 have been rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

An amendment was filed on April 12, 2007, after the final rejection of March 8, 2007, and has been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The invention relates to document processing systems, and to storing and retrieving individual images in a document processing system. Page 2, ll. 3-5. An existing document processor, in order to meet performance demands, stores many images in each image file. Once the images are captured, an indexing scheme must be used to retrieve single images out of each file of images. Page 4, l. 1 - page 8, l. 7.

The invention involves a document processing system having an improved image-indexing scheme. Figures 1 and 3 illustrate a document processing system in a preferred embodiment of the invention. Figure 4 illustrates a method of processing image data in a document processing system in a preferred embodiment of the invention.

Independent claim 49 recites, as best shown in Figures 1 and 3, a document processing system 10 having at least one computer 14, 16 running system software that interfaces with transport hardware 12 to provide document control and capture document

images and document data in various formats. An image file 20, 120 stores a plurality of captured document images 116 for subsequent retrieval on an individual basis. The system 10 includes a computer readable storage medium storing the system software.

The system software on the medium further comprises instructions for indexing the image file 120 by creating an index file 122 containing indexing data for the captured document images 116. The medium further comprises a document-type definition file 112 (Figures 2A-2B illustrate an exemplary DTD file) including a plurality of elements. The index file 122 is in the form of a self-describing document in accordance with the document-type definition file 112. The self-describing document includes indexing data for the captured document images 116 to allow subsequent retrieval of the captured document images 116 from the image file 120 on an individual basis. Page 8, l. 23 - page 9, l. 2; page 21, l. 24 - page 23, l. 8.

An exemplary index file is in accordance with extensible markup language (XML) and is shown in Appendix A at pages 24-26. The example index file is a valid XML document in accordance with the document type definition (DTD) set forth in Figures 2A-2B, described at page 14, l. 15 - page 21, l. 15.

Independent claim 26 recites a document processing system 10, including an imaging subsystem 108, and having at least one computer 14, 16 running system software and interfacing with the document transport 12 to provide document control and capture document images and document data in various formats. An image file 20, 120 stores a plurality of captured document images 116 for subsequent retrieval on an individual basis. The system 10 includes a computer readable storage medium storing the system software. The system software on the medium further includes instructions for indexing the image file 120 by creating an index file 122 containing indexing data for the captured document images 116.

The medium further comprises a document-type definition file 112 (Figures 2A-2B illustrate an exemplary DTD file) including a plurality of element declarations and attribute declarations. The plurality of element declarations includes first elements 44, 48, 50, 54, 56, 60 related to selected parameters of the document processing system, and second elements 64, 66, 70, 74 related to selected parameters of each at least one document that is processed. The attribute declarations include attributes that describe detailed information about selected ones of the elements. The index file 122 is in the form of a self-describing document in accordance with the document-type definition file 112. The self-describing document includes indexing data for the captured document images 116 to allow subsequent retrieval of the captured document images 116 from the image file 120 on an individual basis. Page 8, l. 23 - page 9, l. 2; page 14, l. 15 - page 21, l. 15; page 21, l. 24 - page 23, l. 8.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claim 49 stands provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claim 4 of co-pending application Serial No. 10/714,122.

Claims 2-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson et al. (U.S. Pub. No. 2004/0015566) in view of Lal (U.S. Patent No. 6,684,204).

VII. ARGUMENT

A. Provisional Rejection Of Claim 49 On The Ground Of Non-Statutory Obviousness-Type Double Patenting

Appellants note the provisional rejection based on co-pending application Serial No. 10/714,122, and will consider filing an appropriate terminal disclaimer in the event that the conflicting claim is patented.

**B. **Claims 2-49 Are Patentable Over
Anderson et al. In View Of Lal****

Claim 49, for example, recites a document processing system having at least one computer running system software that interfaces with transport hardware to provide document control, and capture document images and document data in various formats. An image file stores a plurality of captured document images for subsequent retrieval on an individual basis. The system includes a computer-readable storage medium storing the system software. The system software on the medium further comprises instructions for indexing the image file by creating an index file. The index file contains indexing data for the captured document images. The medium further comprises a document-type definition file including a plurality of elements. The index file is in the form of a self-describing document in accordance with the document-type definition file. The self-describing document includes indexing data for the captured document images to allow subsequent retrieval of the captured document images on an individual basis.

The Examiner acknowledges Anderson's failure to disclose an index file in the form of a self-describing document, as claimed, and relies on Lal as a secondary reference. Appellants believe that Lal also fails to disclose an index file in the form of a self-describing document, as claimed, and that Anderson and Lal still fail to suggest the claimed invention.

Further, Appellants believe that Anderson has additional shortcomings in addition to those shortcomings acknowledged by the Examiner. It appears that Anderson fails to describe an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis, let alone describe an index file in the form of a self-describing document. This additional shortcoming of Anderson is also not overcome by Lal.

Anderson describes an electronic item management and archival system. Anderson does describe document images. Appellants agree that Anderson fails to disclose an index file in the form of a self-describing document. Further, it appears that Anderson fails to describe an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis. In the final Action, with regard to the claim limitations relating to indexing the image file by creating an index containing indexing data for the image file storing captured document images, the Examiner refers to sections 60-69, 85-97, 131, and 238-245. None of these sections describe an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis as claimed.

Sections 60-69 describe an item-input device, and in further detail, describe a check scanner and discuss imaging and data capture. However, there does not appear to be any discussion of an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis as claimed. This portion of Anderson is only describing the item-input device.

Sections 85-97 describe certain aspects of image processing, including image capture. Again, there does not appear to be any discussion of an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis as claimed. This portion of Anderson is only describing certain aspects of image processing.

Section 131 mentions a captured items index. Again, there does not appear to be any discussion of an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis as claimed. The captured items index, at most, is an index of processed items. The claimed index file has specific limitations that are not described by Anderson.

Sections 238-245 give further discussion of images and describe the image match that is used to reconcile captured data with a user-provided match control file. Nevertheless, there does not appear to be any discussion of an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis as claimed. This portion of Anderson seems to only be describing a reconcile feature.

With regard to Anderson, the Examiner states that Anderson describes all claim limitations except the index file being in the form of a self-describing document. For reasons explained above, Appellants disagree. Although Anderson may describe an electronic item management and archival system, describe handling document images, and describe indexing electronic items, Anderson's shortcomings are more significant than acknowledged by the Examiner. In particular, Anderson does not appear to describe an index file for an image file that stores captured document images for subsequent retrieval on an individual basis, let alone describe an index file in the form of a self-describing document. To the extent that Anderson retains document data to allow retrieval of an image file for a document, the document data simply indicates the path and filename of a TIFF file. There is no description of any index that allows individual image retrieval from an image file containing a plurality of images, let alone any teaching of an index file being in the form of a self-describing document.

Lal does not overcome the shortcomings of Anderson. Lal does not appear to offer any discussion of an index file in the form of a self-describing document. Further, Lal does not appear to offer any discussion of an index file indexing an image file that stores a plurality of captured document images for subsequent retrieval on an individual basis. Note that Lal is indexing documents, and there is no description in Lal of an index file for an image file that allows individual image retrieval from an image file containing a plurality of images. Further, to the extent that Lal describes indexing, in addition to the fact that Lal is indexing documents and not indexing image files containing multiple images, there is no suggestion of

an index file being in the form of a self-describing document. That is, Anderson's shortcomings are not overcome by Lal.

Lal is about indexing an XML document collection; Lal describes conducting a search on a network which includes documents having a plurality of tags. As described by Lal, and as illustrated in Figure 7, Lal is about indexing XML documents. More specifically, Lal is about indexing a collection of XML documents 110 by creating hash table index 115 and tree index 116. That is, Lal is teaching the creation of indexes for an XML document collection. There is clearly no suggestion of an index file in the form of a self-describing document. Lal illustrates a hash table in Figure 8, and illustrates a tree index in Figure 9. These indexes in Lal are described at column 5, ll. 7-35, and there is clearly no teaching of an index file in the form of a self-describing document.

Both the hash table index and the tree index, as illustrated in Lal, are object or data structures containing pointers to elements in a document object model, are not documents, and are certainly not index files that index image files containing multiple document images, let alone index files in the form of self-describing documents. Lal describes table index and tree index structures containing pointers.

In more detail, the hash table index, as shown in Figure 8, is a flat index of pointers to elements in the document object model. The hash table index does contain the names of tags that occur in the XML documents; however, the hash table is only a table of names and pointers (that is, an object or data structure containing pointers), and is certainly not a document let alone the fact the claims specifically require a self-describing document.

Further, with regard to the tree index, the tree index does contain the names of tags that occur in the XML document, and does reflect the basic structure of the XML document and the document type definition associated with the XML document. Nevertheless,

the tree index is simply a tree index containing pointers (that is, an object or data structure containing pointers). The tree index is certainly not a document let alone the fact that the claims specifically require a self-describing document.

The hash table index and the tree index do function as indexes for XML documents. However, the hash table index and the tree index themselves are not documents, and are certainly not index files that index image files containing multiple document images and that are in the form of self-describing documents. The fact that the indexes contain the names of tags that occur in the XML documents, and in the case of the tree index, maintain the context of the tags, does not result in the conclusion reached by the Examiner that these indexes are themselves in the form of self-describing documents. Put another way, the hash table index and tree index do not suggest an index file in the form of a self-describing document. The hash table index and tree index, as illustrated, are in the form of object or data structures – not documents, and clearly not self-describing documents. Even if there were a suggestion to serialize the hash table index, or the tree index, to create a byte stream for a file, there is no suggestion that the resulting byte stream (file) would represent the index file in the form of a self-describing document or even in the form of a document at all.

Appellants believe that both Anderson and Lal have significant shortcomings. Neither Anderson nor Lal describe an index file for an image file that stores captured document images for subsequent retrieval on an individual basis. Further, neither Anderson nor Lal describe an index file in the form of a self-describing document.

In any event, Appellants believe that there is no motivation to combine the references to achieve the claimed invention. There is no reason why someone of ordinary skill in the art would combine teachings of the prior art to arrive at the claimed invention. In the final Action, the Examiner states that Anderson discloses that the captured data are in XML, but does not explicitly disclose indexing of XML data. The Examiner goes on to state that Lal

teaches indexing of XML data wherein an index file is in the form of a self-describing document in accordance with the document type definition file.

Appellants respectfully point out that the claimed invention is not about indexing of XML data, but rather the claimed invention is about indexing a plurality of captured document images that are stored in an image file for subsequent retrieval on an individual basis, wherein the index file is in the form of a self-describing document. The Examiner is making statements about Lal's indexing of XML data; however, the invention is not about the indexing of XML data, and the Examiner has not provided any prior art teaching of the claimed image file storing multiple images and the associated index file in the form of a self-describing document.

It appears that the Examiner is stating that Anderson could be modified in view of Lal to index captured data that are in XML. Even so, such modification still does not achieve the claimed invention.

For the reasons given above, claims 2-49 are believed to be patentable.

The fee of \$500.00 as applicable under the provisions of 37 C.F.R. § 41.20(b)(2) is enclosed. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978.

Respectfully submitted,

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Enclosure - Appendices

VIII. CLAIMS APPENDIX

1. (Cancelled)
2. The document processing system of claim 49, wherein the document-type definition file includes a plurality of elements delineating parameters of the document processor.
3. The document processing system of claim 2, wherein the document-type definition file further includes a plurality of attributes associated with selected ones of the plurality of elements, the association being set forth in an attribute declaration list.
4. The document processing system of claim 3, wherein selected attributes include a choice subgroup, the choice subgroup having at least two values.
5. The document processing system of claim 4, wherein the plurality of elements include optional user-defined elements when a predetermined one of the attribute choice subgroup values is selected.
6. The document processing system of claim 5, wherein the document is a check.

7. The document processing system of claim 6, wherein the user-defined elements include a check account number element.

8. The document processing system of claim 6, wherein the user-defined elements include an element delineating that the document is a check.

9. The document processing system of claim 6, wherein the user-defined elements include a check amount element.

10. The document processing system of claim 6, wherein the user-defined elements include a check account number element.

11. The document processing system of claim 6, wherein the user-defined elements include a check routing and transit number element.

12. The document processing system of claim 6, wherein the user-defined elements include a check sequence number element.

13. The document processing system of claim 6, wherein the user-defined elements include a transaction number element.

14. The document processing system of claim 6, wherein the user-defined elements include a transcode element.

15. The document processing system of claim 5, wherein the document is a stub.

16. The document processing system of claim 15, wherein the user-defined elements include an account number element.

17. The document processing system of claim 15, wherein the user-defined elements include an amount element.

18. The document processing system of claim 15, wherein the user-defined elements include a date element.

19. The document processing system of claim 15, wherein the user-defined elements include an element delineating that the document is a remittance.

20. The document processing system of claim 15, wherein the user-defined elements include a transcode element.

21. The document processing system of claim 15, wherein the user-defined elements include a transaction number element.

22. The document processing system of claim 5, wherein the plurality of user-defined elements includes parsed character data.

23. The document processing system of claim 5, wherein the plurality of user-defined elements includes unparsed character data.

24. The document processing system of claim 5, further comprising a parser for interpreting the image data according to the document-type definition file.

25. The document processing system of claim 49, wherein the document processor is capable of being connected to other document processors via a network.

26. A document processing system, including an imaging subsystem, having at least one computer running software that interfaces with transport hardware to provide document control and capture document images and document data in various formats, wherein an image file stores a plurality of captured document images for subsequent retrieval on an individual basis, the system including a computer readable storage medium storing the system software, the system software on the medium further comprising:

instructions for indexing the image file by creating an index file containing indexing data for the captured document images;

a document type definition file having a plurality of element declarations and attribute declarations, wherein the plurality of element declarations includes first elements related to selected parameters of the document processing system and second elements related to selected parameters of each at least one document that is processed, and wherein the attribute declarations include attributes that describe detailed information about selected ones of the elements; and

wherein the index file is in the form of a self-describing document in accordance with the document-type definition file, the self-describing document including indexing data for the captured document images to allow subsequent retrieval of the captured document images on an individual basis.

27. The document processing system of claim 26, wherein selected first elements include first child elements and selected second elements include second child elements.

28. The document processing system of claim 27, wherein the first child elements are elements defining the attributes and data that are common to subsequent elements.

29. The document processing system of claim 27, wherein the first child elements are elements related to the imaging subsystem.

30. The document processing system of claim 29, wherein the imaging subsystem includes image storage means, and a first child element is an element defining the identity of the image storage means.

31. The document processing system of claim 29, wherein the imaging subsystem includes a camera, and wherein a first child element has at least one attribute, the attribute being the identity of the camera.

32. The document processing system of claim 29, wherein the imaging subsystem includes a camera, and wherein a first child element has at least one attribute, the attribute being the identity of the image file associated with the camera.

33. The document processing system of claim 29, wherein the document processing system includes an image capture server, and a first child element is an element defining the identity of the image capture server.

34. The document processing system of claim 33, wherein the element defining the identity of the image capture server has at least one attribute, the attribute having a value identifying the document processing system.

35. The document processing system of claim 34, wherein the value identifying the document processing system is selected from the group consisting of a name of the image capture server and a serial number associated with the document processing system.

36. The document processing system of claim 27, wherein the second child elements include a plurality of attributes defining the at least one document in relation to the imaging subsystem.

37. The document processing system of claim 36, wherein the imaging subsystem includes image storage means, wherein one attribute includes information related to the time it took to store image data of the at least one document in the image storage means.

38. The document processing system of claim 36, wherein the imaging subsystem includes a camera, and one attribute includes information about the skew angle of each at least one document in relation to the camera.

39. The document processing system of claim 27, wherein the second child elements include parsed character data defining what image character recognition parameters are to be used with the image data of the at least one document.

40. The document processing system of claim 39, wherein selected image data of the at least one document are captured as a clipped portion of a JPEG image, wherein the image file includes a sub-folder that sets out the coordinates to use when capturing the clipped portion of the JPEG image, and wherein the image character recognition parameters are located in the image file sub-folder.

41. The document processing system of claim 27, wherein the second child elements include a plurality of attributes defining image information of each of the at least one document processed by the document processing system.

42. The document processing system of claim 41, wherein one attribute includes a document identification number.

43. The document processing system of claim 41, wherein one attribute includes image character recognition type.

44. The document processing system of claim 41, wherein the plurality of image information attributes includes information relating to the dimensions of the image.

45. The document processing system of claim 41, wherein the image information attributes include information relating to the resolution of the image.

46. The document processing system of claim 41, wherein the image information attributes include information relating to the compression of the image.

47. The document processing system of claim 41, wherein the image information attributes include information relating to the threshold value for the image.

48. The document processing system of claim 26, wherein the document processor is capable of being connected to other document processors via a network.

49. A document processing system having at least one computer running software that interfaces with transport hardware to provide document control and capture document images and document data in various formats, wherein an image file stores a plurality of captured document images for subsequent retrieval on an individual basis, the system including a computer readable storage medium storing the system software, the system software on the medium further comprising:

instructions for indexing the image file by creating an index file containing indexing data for the captured document images;

a document-type definition file including a plurality of elements; and

wherein the index file is in the form of a self-describing document in accordance with the document-type definition file, the self-describing document including indexing data for the captured document images to allow subsequent retrieval of the captured document images on an individual basis.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.